NEW ZEALAND'S LIVESTOCK and MEAT INDUSTRY

...and the U.S. Producer

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SUMMARY

U. S. meat animal producers face direct competition in the domestic market from imports of New Zealand meat. They also face indirect competition from New Zealand's exports of livestock byproducts like tallow, hides, and variety meats to countries which are large markets for the substantial U. S. exports of these items.

New Zealand's meat production totals about 1.5 billion pounds annually, of which about 800 million pounds is lamb and mutton and 500 million beef. Only about 40 percent of production is required for domestic use, although per capita consumption averages among the highest in the world. Traditionally, the United Kingdom has received the bulk of New Zealand's exportable surplus.

Imports of New Zealand meat by the United States rose sharply during 1957 and 1958 and are continuing large again this year. New Zealand's exports of meats, including canned, during the 1957-58 season (Oct. 1-Sept. 30) totaled 908 million pounds of which 186 million (20 percent) went to the United States. Exports of beef and veal to the United States of 177 million pounds accounted for 72 percent of New Zealand's beef and veal shipments. Most was frozen boneless beef and veal. Experimental shipments of chilled fat young beef carcasses have been received at California ports and have proved successful.

The United States is receiving about all the available supply of boning-type beef and young boneless veal from New Zealand; exports to the United Kingdom are mainly steer, cow, and heifer carcasses too fat to bone, for which the demand is relatively strong in the United Kingdom.

There is little prospect of a big increase in New Zealand's beef production in the next several years. Although the country is well adapted to beef cattle production, sheep production and dairying appear to be so profitable that there will not be a great shift toward beef cattle. Much of the beef produced is from the dairy industry. Beef cattle are usually run in conjunction with sheep. However, a small but steady increase in beef production is expected.

Lamb shipments to the United States during 1957-58 were only 5.2 million pounds--about 1 percent of New Zealand's lamb exports. Lamb has been received as frozen carcasses and cuts. Experimental shipments of chilled lamb have also been made but there is some doubt whether chilled lamb can be shipped such a long distance and still retain a good appearance.

Sheep numbers and production of wool and lambs have increased steadily and there is considerable potential for further expansion. This season a record of 17 million lightweight grass-fattened young lambs (carcasses averaging 32-35 pounds) are being slaughtered and most of the exportable supply is being marketed in the United Kingdom.

New Zealanders fear that their exports of fat lambs to the United Kingdom cannot be further increased and still remain profitable. They look instead to the United States as a growing market for their increased production. The prices at which frozen New Zealand lamb can be delivered to the United States are lower than those of U. S. chilled lamb. However, frozen lamb does not have the consumer acceptance of fresh lamb in the United States; moreover, throughout the years there has been a tendency for lamb consumption per person to decline. Nevertheless, imports of lamb from New Zealand have increased and are expected to grow even more. The increase is likely to be frozen trimmed cuts in cartons rather than whole carcasses. Exports to the United States have been moderate in view of New Zealand's large exportable supplies and the low prices for frozen lamb. The New Zealand Meat Board's policy

has been to prevent excessive shipments that would unduly depress domestic prices and would antagonize U. S. producers.

New Zealand is free of sheep diseases that would prevent shipments of live lambs to the United States. Therefore, it could ship live lambs as successfully as Australia is now doing.

The large U. S. imports of boneless beef are likely to decline in the next few years as increased cow slaughter brings increased supplies of processing beef in the United States. However, domestic prices will have to fall substantially before this trade will cease. Imports may also decline as a result of reduced supplies in New Zealand in periods when cattle numbers are increasing. Sizable quantities of boneless veal will continue to be imported as an ingredient for luncheon meats and other processed products. Imports of chilled beef probably will expand, but New Zealand only produces a limited amount of the young beef, comparable to U. S. Good or Choice, that could best be marketed in this form.

Although New Zealand is a large source of U. S. wool imports, most are coarse duty-free carpet types. As little wool of these types is produced domestically, imports have little effect on the domestic wool industry.

New Zealand has increased its exports of tallows and greases, variety meats, cattle hides, and calf skins to many overseas markets that are supplied by the United States. As New Zealand's livestock output grows, even more competition will develop against U. S. exports of packinghouse products in world markets.

DESCRIPTION OF LIVESTOCK AND MEAT INDUSTRY

Importance

New Zealand is primarily an agricultural country, and its economy depends largely upon its agricultural production. Meat, wool, and dairy products are by far its most important products. A relatively small percentage of its people actually live on farms. However, a large part of the population is employed in secondary industries that must be supported by agriculture. Raw materials and semifinished and finished goods must be imported with foreign exchange generated through farm export earnings.

New Zealand must look to expanding markets for its livestock products if its standard of living is to improve. Without substantial export earnings from these products, it could not support its population of 2.3 million.

In 1958, the livestock industry accounted for about 90 percent of New Zealand's export income. Meat brought in 31 percent of the total, wool 30 percent, butter 16 percent, and cheese 6 percent. It was unusual for meat income to exceed wool income, but meat prices were at a record high and wool prices were in a slump.

TABLE 1.--Export income: Amount and percent of total, by source, 1958

Commodity	Amount	Share of total	Commodity	Amount	Share of total
	Million dollars	*Percent*		*Million dollars*	*Percent*
Livestock and meat products:			Livestock and meat products--Continued		
Meat	236.9	30.9	Tallow	10.9	1.4
Wool	229.9	30.0	Other meat products	2.0	.3
Butter	119.3	15.6	All other products	79.7	10.4
Cheese	49.5	6.4			
Sheep pelts and skins	16.0	2.1			
Hides and skins	10.4	1.3	Total	766.6	100.0
Sausage casings	12.0	1.6			

Livestock Types

Sheep. --The production of sheep, lambs, and wool is New Zealand's chief industry and the economy of the country centers around it. Over 40 million acres of New Zealand's total area of 66 million are used for pastoral purposes. It is estimated that about 6 million acres are used for dairy farming and 2 million for beef cattle, leaving approximately 32 million for sheep.

TABLE 2.--Land use by crops grown and vegetative cover, Jan. 31, 1957

Class of land	Area	Class of land	Area
Cultivated land:	*1,000 acres*	Unimproved land:	*1,000 acres*
Principal cereal crops and crops for threshing[1]	309	Tussock and naturally established native grasses	13,254
Green root and other crops[1]	785	Fern scrub and second growth	4,999
Fallow	164	Standing native bush	2,376
Sown grasses and clovers:		Barren and unproductive	1,918
Cut for hay, seed, or ensilage	1,333	New Zealand flax (Phormium)	35
Not cut for hay, seed, or ensilage	16,347		
Planted trees	915	Total unimproved land	22,582
Other crops, orchards, and nurseries	117		
Total area in cultivation	19,970	Total area in occupation	42,552

[1] Includes areas also sown with grasses and clovers.

By the middle of 1958 New Zealand, with a land area about the size of California, had around 46 million sheep, or nearly 50 percent more than the U. S. total. This was 8 percent more than a year earlier, and 46 percent above prewar; breeding ewes reached a new record of 30.9 million head, or 67 percent of total sheep numbers. Sheep are widely distributed over both the North and South Islands. Most of the variations in sheep population are due to changes in the carrying capacity. Some of the high country in the South Island, covered with sparse native grasses and tussock, carries only 1 sheep to 10 acres, though in extensive areas of the country improved pastures carry 6 or more ewes to the acre.

The average flock consists of about 1,000 adult sheep. The breeding ewes, preponderantly of the Romney breed, are crossed on Southdown rams to produce market lambs. Pure Romneys are bred for ewe replacements.

Sheep are usually grazed in fenced pastures on a rotational basis. Best pastures are generally reserved for fattening lambs. The fat-lamb industry is based on marketing a milk-fed lamb, averaging 32-35 pounds carcass weight (70-80 pounds live weight) at 4 to 8 months of age. In the mountainous sections of the South Island, some sheep of the Merino breed are raised, and here it is a practice to keep aged wethers for wool production. Lambs produced in these areas are either sold to fattening farms or are grown out as yearlings. Hence there is considerable yearling and wether mutton available.

Despite the fact that New Zealand spans a latitude of more than 1,000 miles, the type of sheep produced and the production practices are uniform. The commercial industry may be divided into three large classes: (1) High hill-country farms; (2) lower hill-country farms; and (3) fattening farms. There are a number of farms of intermediate type and a number of stud farms.

High hill-country farms, covering an estimated 10 million acres, are found mainly on the South Island. For this class of land, carrying capacity is low, averaging about 1 sheep to 4 acres. The area is covered principally with native tussock grasses. Rabbits have been a serious pest in the past, but they have now been greatly reduced and are being hunted, poisoned, and trapped. In this area, where snowfalls occasionally cause large losses of sheep, Merinos have been found to be more adaptable to the cold weather and steep terrain than other breeds. Ranchers here obtain most of their income from wool; so they give considerable attention to selecting rams with good wool-yielding characteristics. They keep as large a percentage of wethers as possible and only enough ewes to raise replacements. Little surplus feeder stock is available for sale, for lambing percentages are low. Some sheep in these areas are herded,

but most are confined in large pastures by the use of fences and natural barriers. Where the weather is not too severe, crossbred sheep are raised, such as Lincoln × Merinos or Leicester × Merinos.

However, it is the lower hill country that is the most important sheep-raising area. Farms in this area, estimated to comprise almost 20 million acres, carry from 1 to 2 sheep per acre. Since the advent of aerial top dressing, much of this land has been fertilized, a practice that has greatly increased its carrying capacity.

Most of the lower hill country in the North Island was originally covered with forest. Early settlers felled the trees and burned the fallen timber and brush; grass was then seeded in the burned area. For a number of years there was a gradual decline in soil fertility; erosion set in and scrub, fern, and second-growth timber rapidly encroached. Cattle are kept on many of these farms, particularly on the poorer type, principally to graze the fern and other undesirable vegetation, which sheep will not consume. Here, cattle are regarded somewhat as agricultural implements, and the farmers do not expect to realize much cash return from them. These hill-country farms usually carry crossbred sheep, and have a high proportion of ewes in the flock. Great effort is made to raise practically all lambs born alive; there are few losses of lambs from starvation or low nutrition. Sales from these farms consist mainly of fat lambs, feeder lambs, cull yearling ewes, and aged ewes. The latter are purchased by fattening farms which usually mate them with Southdown rams to produce one or more crops of fat lambs.

Lower hill-country farms in the South Island, being more arid, have been developed from natural tussock areas rather than forest cover. More half-bred or Corriedale sheep are carried than in the North Island. In the higher rainfall areas of the South Island, pastures tend to deteriorate through constant grazing. A certain number of pastures are plowed and sown to special crops such as turnips, rape, or cereal grains, which are used for supplemental winter feed. Then they are reseeded to more desirable grasses and legumes. Sheep rather than cattle are carried, since second growth in the pastures is not significant.

Lamb-fattening farms are located on the most fertile lands except those used for dairying. In the North Island they are largely covered with permanent grass and clover pastures, the pastures being highly fertilized. Management practices differ, but usually the older ewes are brought from hill farms and used to produce one or more crops of lambs. The Romney ewes are usually mated with Southdown rams. Lambing begins in August and September, and the first fat lambs are slaughtered in December. The peak slaughter months are December and January; the season ends in July. Where possible, lambs are milk fed until slaughter; or they may be weaned and fattened off on special crops such as rape or turnips. The extra flush of spring grass may be used for hay or ensilage, or for cattle grazing. On the fattening farms, lamb and wool production reaches a maximum. The best farms may save 120 to 140 lambs from 100 breeding ewes. There are few death losses, and a large percentage of the lambs are marketed as fat. Often these pastures support 6 to 8 ewes per acre.

Conditions are more variable in the South than the North Island. In the Canterbury district there is considerable production of grain and other crops, and some irrigation. Alfalfa is used to some extent in fattening, both as hay and for grazing. Ewes brought in from hill areas include Merinos, half-breeds, Corriedale, and crossbreeds. Most of the fat lambs are sired by Southdowns, although the Border Leicester is popular.

Productivity is notably high on New Zealand farms. The New Zealand Meat and Wool Board's Economic Service has made the following estimates for production of meat (dressed weight, with allowance for beef produced on sheep farms) and wool, in pounds per acre:

	1953-54	1954-55	1955-56
Meat:			
Specialized fat-lamb farms	136	139	134
Less intensive fat-lamb farms	77	84	76
North Island hill-country farms	72	61	67
Wool:			
Fat-lamb farms	42	42	44
Hill-country farms	21	21	20

The lambing percentage for the country as a whole during the spring of 1958 (September to December) was over 100 percent--an alltime high, though the percentage has not been below 94.3 during the last 10 years.

Most of New Zealand's wool production is of coarse types. In 1957, 70 percent of the sheep were Romneys, 2 percent Merinos, 6 percent halfbloods, 13 percent other crossbreds, and 5 percent Corriedales.

Since 1920, there has been an almost steady annual increase in wool production. During this period, production more than doubled; it is now 72 percent above prewar. This increase resulted from a general rise in sheep numbers, and a higher yield of wool per sheep shorn. Current production is about 530 million pounds--a new record--compared with around 300 million in the United States. New Zealand is the third largest wool producer in the world.

Dairy Cattle.--Dairying is New Zealand's second largest industry. Net returns from dairying are often higher than can be obtained from sheep or cattle, especially on the smallest, most productive farms. Much of the milk produced is used in the manufacture of cheese and butter for export.

TABLE 3.--Livestock: Numbers on farms by type, sex, and age, 1955-58

Classification	1955	1956	1957	1958
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*
Dairy stock:[1]				
Dairy cows and heifers 2 years and older	2,108	(2)	2,108	(2)
Heifers, bulls, and bull calves under 2 years	971	(2)	840	(2)
Total dairy stock	3,079	(2)	2,948	(2)
Beef stock:[1]				
Beef cows and heifers 2 years and older	1,092	(2)	1,133	(2)
Heifers under 2 years	562	(2)	589	(2)
Steers and bulls for slaughter 2 years and older	516	(2)	494	(2)
Bulls and steers under 2 years	608	(2)	613	(2)
Breeding bulls 2 years and older	30	(2)	32	(2)
Total beef stock	2,808	(2)	2,861	(2)
Total cattle	5,887	(2)	5,809	5,875
Sheep:[3]				
Lambs	9,191	9,538	10,019	11,298
Wethers	2,559	2,495	2,262	2,601
Breeding ewes	26,186	27,016	28,899	30,876
Dry ewes	479	477	431	446
Rams	702	729	771	805
Total sheep	39,117	40,255	42,382	46,026
Hogs:[1]				
Pigs under 1 year	576	(2)	518	572
Boars 1 year and older	16	(2)		
Sows 1 year and older	89	(2)	84	88
Total hogs	681	(2)	602	660

[1] As of Jan. 31. [2] Not available. [3] As of June 30.

Approximately 90 percent of the dairy animals are on the North Island. In 1957, the dairy animals in New Zealand totaled over 2.9 million; 2.1 million were cows and heifers over 2 years, and the remainder bulls and young stock.

Most of the dairy farms are located on the North Island, particularly in the Waikato, Northland, Taranaki, and Bay of Plenty districts. In these areas the rainfall is fairly high and well distributed over the year. The land is of average to good quality, although it requires phosphates and perhaps potash. Cows are grazed the year around with little preserved feed. Housing of cattle is not required, although many dairy herds are protected by canvas or burlap blankets during winter. The equitable climate and absence of prolonged drought give an almost continuous growth of pasture throughout the year, although growth slows during the winter and dry summers. Pastures are principally perennial ryegrass and white clover; other grasses, such as cocksfoot, timothy, paspalum, and subterranean clover, make up a proportion of the cover. After a pasture has been established, it is rarely cultivated other than by harrowing to spread animal droppings. Cattle usually graze the pastures in rotation. In spring, some pastures are allowed to grow and are harvested for hay or silage, which are fed during dry summers or in the winter.

A typical farm has from 70 to 120 acres and carries 40 to 60 cows. Nearly all are milked by machine. Many of the calves are sold for slaughter soon after birth; some are raised on skim milk, meat meal, and cereal meal, with limited amounts of whole milk. Approximately 85 percent of the dairy cows are Jerseys.

Beef Cattle.--Over 80 percent of the beef cattle are on the North Island, usually on specialized beef farms, but also on dairy farms, farms producing sheep, or other enterprises. An analysis of Commonwealth farms by principal type of production in 1949-50 showed 952 farms raising principally beef cattle, on 1.4 million acres, and 215 beef-sheep farms, on 286,000 acres. The total number of farms producing beef--including beef-cattle, beef-sheep, beef-dairy, and others--was listed at 1,241, covering 1.7 million acres. Although the number of farms keeping cattle has probably increased during the past 10 years, the total area used by cattle is still relatively small. Some cattle are kept in areas where land is being cleared. Close grazing by cattle is one means of clearing fern and bracken from new land.

During 1957, New Zealand had a total of 1.6 million beef cattle over 2 years old, of which about 500,000 were steers and bulls over 2 years, for slaughter. The total number of beef cattle, including steers from dairy herds, was slightly under 2.9 million, or 49 percent of all cattle.

Nearly all of New Zealand is well adapted to beef cattle; more cattle would be produced if this operation were more profitable in comparison with dairying and sheep production. Beef cattle require more preserved winter feed than sheep. The provision of suitable watering places in the pastures is also a problem in raising cattle. On some soils, cattle cause more difficulty than sheep in miring into the pastures and compacting the ground, especially during winter rains. Many sheep farms would graze cattle during the spring and summer if feeder cattle were available. However, the strong demand for cattle for grazing in the spring means a high price at that time, which discourages farmers from following this practice.

Hogs.--Hogs are raised mainly as a byproduct of the dairy industry. Dairy products, mostly skim milk and whey, provide about 80 percent of the hog rations. However, some whey from cheese and casein factories is now being wasted, as well as some skim milk on farms. Other concentrated feed for hogs, constituting about 5 percent of their total rations, includes meat meal, barley, molasses, peas, corn, tallow, bran, copra, and oilseeds. About 15 percent of the average ration is grass, other forage, and root crops.

The extremely high protein content of the hog rations is due to the high prices and relatively short supplies of grains and the low prices of meat meal and dairy byproducts. This is opposite to the situation in the United States, where most hogs are fed large amounts of grain but low or inadequate amounts of protein supplements.

The New Zealand Government and the New Zealand Pig Producers' Council are both encouraging hog production. However, it is likely to continue to be a minor farm enterprise. The principal functions of the Council are to promote the interests of the hog industry, act on its behalf in negotiations and discussions, organize research work, and cope with industry problems. To finance the Council's operations, a levy of 9 cents per head is collected on each pig killed. Grants are made to district councils to assist advisory work in pig husbandry. The National Council also promotes the National Pig Breeding Scheme to improve the quality of breeding stock.

Meat Industry

Livestock Slaughter and Meat Production. --Meat destined for export from New Zealand is slaughtered at special meat export slaughterhouses, of which 36 were in operation during the 1958-59 season. Licenses for slaughterhouses are issued annually under authority of the Meat Act of 1939, which also authorizes officers of the Department of Agriculture to make inspection of all meat, whether for export or for local consumption.

During 1958-59, there were 42 abattoirs operating to supply the domestic meat requirements in the larger urban centers. In addition, the supply was augmented by meat from export slaughterhouses. For consumption in small country towns and rural districts, meat is produced in rural slaughterhouses; in addition, many farmers, particularly on sheep farms, slaughter animals for their own consumption.

Since 1954, each year's cattle slaughter has established a new record. The alltime high of 1.1 million head for the year ending September 30, 1958, represents an increase of 85 percent over the prewar (1936-40) average. Calf slaughter reached a record peak of 1,435,000 head in 1955. The 1958 slaughter was somewhat lower but still 24 percent above the prewar average. Most of the calves come from dairy herds and are slaughtered when only a few days old. Meat from these calves is known as bobby veal.

Lamb marketings during 1958 reached a record high and were 62 percent larger than the average for 1936-40. A further increase amounting to 15 percent is estimated for 1959.

Slaughter plants do not have the capacity to slaughter, store, and process all lambs ready for market during the peak slaughter period. Lack of storage and shipping space restricted lamb killings in the three Southland works during the past season and also delayed the slaughter of ewes, which is at its peak immediately following the lamb season. One large slaughter plant is being built on South Island near Invercargil, the first new export plant to be built in many years. However, a great deal of renovation, repair, and expansion of existing plants is taking place throughout the country.

TABLE 4.--Cattle and calves: Numbers and slaughter, averages 1936-55, annual 1956-58

Year	Number on farms[1]	Slaughter[2]			Year	Number on farms[1]	Slaughter[2]		
		Cattle	Calves	Total			Cattle	Calves	Total
	1,000 head	*1,000 head*	*1,000 head*	*1,000 head*		*1,000 head*	*1,000 head*	*1,000 head*	*1,000 head*
Average:					Annual:				
1936-40....	4,388	597	1,061	1,657	1956....	5,600	1,000	1,406	2,406
1941-45....	4,524	684	1,023	1,707	1957....	5,809	1,048	1,407	2,455
1946-50....	4,739	698	1,155	1,853	1958....	5,875	1,107	1,314	2,421
1951-55....	5,468	753	1,325	2,078					

[1] As of Jan. 31. [2] Year ending Mar. 31, 1936-39; Sept. 30 thereafter.

TABLE 5.--Sheep and lambs: Numbers and slaughter, averages 1936-55, annual 1956-58

Year	Number on farms[1]	Slaughter[2]			Year	Number on farms[1]	Slaughter[2]		
		Sheep	Lambs	Total			Sheep	Lambs	Total
	Million head	*Million head*	*Million head*	*Million head*		*Million head*	*Million head*	*Million head*	*Million head*
Average:					Annual:				
1936-40...	31.4	4.1	9.8	13.9	1956....	40.3	5.9	14.8	20.7
1941-45...	32.7	4.6	11.4	16.0	1957....	42.4	5.3	14.3	19.6
1946-50...	33.0	5.0	12.3	17.3	1958....	46.0	5.1	15.9	21.0
1951-55...	36.7	5.4	12.7	18.2					

[1] As of Apr. 30, 1936-50; June 30 thereafter. [2] Year ending Mar. 31, 1936-39; Sept. 30 thereafter.

Sheep slaughter has remained fairly steady for the past 20 years. The annual slaughter of hogs is relatively small and has averaged about three-quarters of a million head since World War II. It has exceeded 1 million head in only 4 years since 1932.

Meat production reached an alltime high in 1958, registering a 42-percent increase over the 1936-40 average and an increase of 3 percent over the previous year. Total production in 1959 is expected to remain about the same, with reduced beef and veal production offset by a large outturn of other meats.

Production of livestock byproducts was also at record levels during 1958. Tallow output reached a peak of 135 million pounds in 1958, almost double the 1936-40 average. Production of sheep and lamb skins during 1958 showed an increase of 50 percent over the prewar average; cattle hides and calf skins recorded a 45 percent increase.

Domestic Consumption.--Approximately 40 percent of New Zealand's meat production is consumed domestically. This proportion has not changed significantly since 1936-40.

A smaller part of beef production has been consumed domestically in recent years, but this has been offset by larger consumption of mutton and pork. Per capita consumption of meat is now approximately 220 pounds per year--a slight increase over the prewar average.

TABLE 6.--Meat: Production by type, averages 1936-55, annual 1956-59

Year[1]	Beef	Veal	Mutton	Lamb	Pork	Total
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Average:						
1936-40	312	40	237	347	99	1,035
1941-45	358	39	282	399	106	1,184
1946-50	365	44	282	426	84	1,201
1951-55	391	46	303	435	88	1,263
Annual:						
1956	530	56	316	472	90	1,464
1957	538	59	282	470	83	1,432
1958	541	52	272	522	84	1,471
1959[2]	510	50	280	538	90	1,468

[1] Year ending Mar. 31, 1936-40; Sept. 30 thereafter. [2] Preliminary.

TABLE 7.--Livestock products: Production by type, averages 1935-39 and 1951-55, annual 1956-58

Year	Tallow and greases[1]	Sheep and lamb skins[1]	Cattle and calf hides and skins[1]	Wool[2]
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*
Average:				
1935-39	72	38	36	308
1951-55	103	49	45	419
Annual:				
1956	122	56	52	490
1957	129	53	53	496
1958	135	57	52	530

[1] Year ending Mar. 31, 1935-39; Sept. 30 thereafter. [2] Year ending June 30.

TABLE 8.--Meat: Per capita consumption by type, averages 1937-39 and 1951-55, annual 1956-58

Year[1]	Beef	Veal	Mutton	Lamb	Pork	Total
Average:	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*	*Pounds*
1937-39	112.0	7.5	60.0	6.5	26.0	212.0
1951-55	106.0	5.7	66.8	9.8	27.8	216.1
Annual:						
1956	105.0	6.0	71.5	8.7	32.9	224.1
1957	107.0	6.4	68.4	8.0	30.6	220.4
1958	106.4	6.8	66.5	9.8	30.3	219.8

[1] Year ending Mar. 31, 1935-39; Sept. 30 thereafter.

PRODUCTION

Potential

New Zealand has considerable potential for increased production. Increases will be largely the result of improvements on existing farms, such as the additional use of fertilizers, clearing of brush, and better husbandry practices. Production will also be influenced by development of new land through clearing and irrigation.

Production Factors

Irrigation. --Throughout most of New Zealand the rainfall is so large and evenly distributed that there is little need for irrigation. There is also a large supply of melting snow water from the Alps of the South Island; this water can be and is used for irrigation. Pump and spray irrigation in times of drought would materially increase forage production on lands that normally do not need additional water.

It is estimated that 250,000 sheep can be carried in the Central Otago when an irrigation project to irrigate 94,000 acres is completed and land under existing ditches is fully developed.

In Canterbury, it is estimated that an additional 2 million sheep could be raised on 650,000 acres if irrigation facilities were constructed.

Clearing New Land. --There are 5 million acres of fern scrub land and 2.4 million acres of native brush which are gradually being cleared. Government and private enterprise are developing about 100,000 acres of this highly productive grassland each year. Considerable progress has been made in finding sprays to kill objectionable plants rather than uprooting them with heavy machinery. New techniques in clearing, such as the use of large rollers, are helping to reduce the cost.

Top Dressing. --Dramatic production increases have occurred through the addition of both lime and phosphates to most soils of the country. The application of trace elements has also brought big increases in meat and wool production in areas where sheep did not thrive in earlier years. It has recently been found that white muscle disease is the result of selenium deficiency and may be eliminated by the application of small amounts of selenium to the soil. Much of the land in the center of the North Island has been made productive by correcting cobalt deficiency. Spectacular pasture growth from the application of molybdenum and copper has been obtained in several areas.

Top dressing with phosphates and lime may often double the carrying capacity of pastures. Much of the fertilizer is applied from the air. In the past, fertilizer application was largely limited to the most productive lands, but it is now being extended to poorer lands.

In 1957, top dressing was applied to 9.2 million acres of grassland, compared with 5.7 million acres in 1950 and 3.9 million acres in 1938. The acreage top-dressed by plane has increased from 49,000 in 1949-50 to 4.2 million in 1957-58.

New Zealand beef is popular abroad. Above, boneless beef arrives at San Francisco; below, it embarks for Britain.

Planes are widely used to
terials like fencing, eme

Rich pastures like the Kairanga distric
can run a large number of sheep per acre

Chilled beef is unloaded at destination.
Britain still takes most of top quality.

top dressing and drop ma-
feed, and rabbit poison.

New Zealand's economy centers around sheep. Above, wool grading in central warehouse; below, slaughtered lambs.

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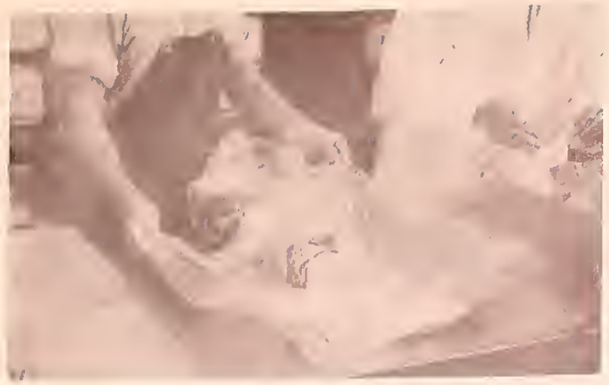
Frozen lamb on San Francisco docks. U. S. market has risen, but top lamb buyer is still Britain.



New Zealand beef is popular abroad. Above, boneless beef arrives at San Francisco; below, it embarks for Britain.

Planes are widely used to apply top dressing and drop materials like fencing, emergency feed, and rabbit poison.

New Zealand's economy centers around sheep. Above, wool grading in central warehouse; below, slaughtered lambs.

Dairying, second only to sheep in the economy, is also the source of many cattle for slaughtering.

Frozen lamb on San Francisco docks. U.S. market has risen, but top lamb buyer is still Britain.

Chilled beef is unloaded at destination. Britain still takes most of top quality.

Rich pastures like the Kairanga district can run a large number of sheep per acre.

Over 13 million of New Zealand's 31 million acres of grassland, primarily in the South Island, is covered with tussock. Experimental reseeding and fertilization of these lands by air has demonstrated their potential for improvement.

Pasture Reseeding. --Reseeding native pastures with improved grass and legume varieties holds promise for great increases in New Zealand's production. It has been found that seeding of legumes has increased the nitrogen content of the soil and has thus increased the growth of grasses. It has been possible to seed extensive areas of rough terrain by airplane. Better strains of higher yielding grasses and legumes are being developed.

Conservation of Forage. --New Zealand's farmers are increasing the preparation of silage and hay during periods of peak production in the spring and early summer for use in the winter. This is particularly true in the cattle-raising areas of the South Island. The high mountain valleys there produce considerable hay which is fed to sheep during the winter. However, much of New Zealand's pasture lands are so rough that production of grass silage or hay is not practical. Hay is cut from high-yielding pastures in both the North and South Islands, particularly near urban areas. The hay is stored for feeding dairy cattle during the winter to keep yields at fairly high levels for supplying milk to the towns. However, the high cost of making hay and preparing silage discourages the production of conserved fodder. Here also, it is often too wet to prepare good hay.

Some green pasture crops such as rape and turnips are grown for winter feed of sheep and cattle, and as summer and fall feed for fattening lambs. Often fields that are planted to these crops are later seeded to permanent grass and legume pasture. After permanent pastures have been established, farmers generally do not grow crops on the land unless the pastures deteriorate.

Control of Pests and Diseases. --The high rate of stocking and the high moisture conditions under which sheep are grazed result in heavy infestation of internal parasites. These are combated by periodic drenching and rotation of pastures. Grazing cattle and sheep together is believed to help reduce the number of internal parasites in sheep; it tends to break up the life cycle of the worms, which do not affect cattle. For fly strike, which is common, sheep may be dipped or sprayed. Crutching is an almost universal practice for prevention of damage by flies. Foot rot is common at times in some areas.

Last year's discovery that facial eczema is caused by a fungus will facilitate control of this disease.

The introduction of the virus myxomatosis into the country has greatly reduced the rabbit population. Formerly, these rodents consumed large quantities of feed and caused excessive soil erosion in many areas. Many sheep ranchers found it necessary to install expensive fences to keep out rabbits from adjoining lands. Now the rabbit-tight fence is usually unnecessary. Although damage caused by these animals has been greatly reduced, the campaign of eradication is continuing. In addition to the virus, poisons are being used and the pests are being hunted and trapped. Sale of rabbit skins and meat is prohibited to prevent anyone from profiting by an increase in numbers.

Wild pigs, wild goats, deer, and wallabies are other pests which are being reduced in number by farmers and the government. Control of these animals permits more sheep and cattle to be grazed.

Breed Improvement. --Although the average production of meat and wool per animal is high in comparison with other countries, a fairly large proportion of the ewes, particularly the Romneys, fail to conceive. Considerable research on this problem has been conducted by producers and experiment station workers. A reduction in the number of barren 2-year-old ewes has been obtained in some cases by shearing before the breeding season. It is the general practice to shear rams before mating. As a rule, New Zealand's breeding ewes are carefully selected and rigorously culled. Through this process, it has been possible to steadily increase lamb output per sheep, and a further increase in fertility is expected.

As the beef-cattle industry develops, improvement in the meat-producing ability of the cattle may be expected. This could result from better beef conformation and cattle which mature at earlier ages.

Government Assistance to Livestock Producers

Subsidies. --It has long been government policy to pay farmers grants and subsidies from public funds. In addition, there are price support programs on livestock sold for slaughter and on wool. Livestock producers also benefit from government extension programs and experimental research.

One important benefit to farmers has been government and industry payments of the freight on lime from the point of manufacture to individual farms. This subsidy, designed to encourage the use of lime by farms located far from the point of manufacture, amounted to $1.3 million for the year ending June 30, 1957. Some 70 percent of the cost has been borne by the Meat Industry Reserve Account[1].

Payments to rabbit boards for eradication work amounted to $2.1 million during 1957. Approximately $2.6 million was spent on grants to agricultural colleges on disease eradication programs and control of noxious weeds.

Minimum Prices for Export Meat. --Since 1955, minimum prices for meat exported from New Zealand have been fixed annually by the Meat Export Prices Committee.[2] When necessary, the Committee also fixes weekly schedules of deficiency payments. These payments are the difference between the minimum price for a class of meat as shown in the annual table or schedule and the f.o.b. equivalent of the price paid to farmers. In fixing the annual minimum price schedule, the Committee must consider (1) the average of prices received for each class of meat for the three preceding seasons; (2) the ruling level of minimum prices; (3) the market trend; (4) prices of other farm products; and (5) the general level of costs, prices, and wages in New Zealand.

Prices paid to producers by the export meat-packing plants have been uncontrolled since the 1950-51 season. However, the New Zealand Meat Producers' Board keeps a close watch on prices and processing costs. If the price falls below the annual minimum, the farmer is paid the minimum by the plant. The plant is then reimbursed from the Meat Industry Reserve Account,[3] with the Meat Board responsible for payment.

The New Zealand Meat Export Prices Committee began the payment of 0.5 cents per pound on yearlings and wethers killed for export beginning March 15, 1959. This was the first time in over 2 years that a deficiency payment had been made.

Wool Price Support. --Since 1952, a price support program has been operated by the New Zealand Wool Commission. The aim of this program is to assure growers minimum prices for wool sold at auctions in either the United Kingdom or New Zealand. The Commission is authorized to supplement the auction price by an amount equal to the difference between that price and the support price (deficiency payments), but has preferred to support the market by purchases. It bought wool during the 1957-58 season--the first time that sizable purchases have been made--and continued to purchase wool in 1958-59.

Incentives to Dairy Industry. --Government policies with respect to the dairy industry are to stabilize returns to producers. The Dairy Products Marketing Commission acquires all butter, cheese, and other dairy products manufactured for export, and sets prices paid to processing plants. There is a Dairy Industry Reserve Account to cover losses, and profits from sales at prices above costs are credited to the reserve account. This account as of July 1956 amounted to over $79 million, but fell to $46 million at the end of the 1957 season and showed a deficit of $20 million as of July 1958. This drastic depletion of reserves resulted from the low prices of New Zealand butter and cheese on the United Kingdom market in the 1957 and 1958 marketing years. The large reserve fund made it possible for the Commission to sell dairy products at competitive prices, equalizing lower prices in certain markets with higher prices in other markets.

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[1] The Meat Industry Reserve Account contribution during the year ended Sept. 30, 1958, was equivalent to $718,000.

[2] Consists of 2 members of the New Zealand Meat Producers' Board, the Secretary to the Treasury, the Director General of Agriculture, and a chairman nominated by agreement between the government and the producers.

[3] During the war, all excess profits on exports were turned over to special funds to be used for the benefit of the industry. Thus farm industry reserves are in existence for dairy products, meat, and wool. As of the end of 1957, the meat fund stood at about $113,713,000.

For dairy products sold on the domestic market there is a program of consumer subsidies. Consumer subsidy payments on milk and butter equaled $23.8 million during the year ending March 31, 1958. These payments tend to hold down the cost of living and thereby also the wage rates for both agriculture and industry.

The degree to which the price stabilization programs for the dairy industry have increased production is difficult to measure. However, it is probable that they have materially encouraged production.[4]

TRADE IN ANIMAL PRODUCTS

Meat

New Zealand depends upon exports as a market for approximately 60 percent of its production of frozen, chilled, and cured meat. This proportion has not changed significantly since 1936-40, except during the war years when sales to the armed forces were excluded from the export statistics. In addition, exports of variety meats have averaged 44 million pounds for the past 5 years, 1954-58.

During the period 1954-58, meat exports (including variety meats) reached an alltime high and exceeded the 1936-40 average by 38 percent. Beef and veal exports have increased sharply since 1955; in 1958 they were about double the 1951-55 average. Foreign sales of lamb have also shown significant increases, while mutton and pork shipments have declined.

The United Kingdom has been by far the principal market for New Zealand meat and has usually received over 90 percent of the total shipments. However, during 1957, trade with the United States increased significantly and the proportion to the United Kingdom declined accordingly. In 1958, meat exports to the United States climbed to more than 4 times the quantity shipped the year before and amounted to 21 percent of total exports. All but a fraction of the 1958 exports to the United States consisted of boneless beef for manufacturing. Ninety-four percent of the lamb and mutton marketed abroad during 1958 was received by the United Kingdom. Exports of pork and variety meats were also largely to the United Kingdom.

The shift in beef exports from the United Kingdom to the United States was primarily the result of more favorable prices obtained in the latter country. Canner and cutter cows, which supply most of the manufacturing beef, have brought about the same price in the U. S. market as the better grades of steers slaughtered for the United Kingdom. Practically all of New Zealand's exportable meat supplies were marketed in the United Kingdom during the period 1939-54 at prearranged prices under an agreement with the British Government.

Since the end of the United Kingdom-New Zealand contract in 1954, exports from New Zealand have been through commercial channels and exports to areas outside the United Kingdom have greatly increased.

TABLE 9.--Meat: Exports as a percentage of production, by type, averages 1936-55, annual 1956-58

Year	Beef	Veal	Mutton	Lamb	Pork	Total
Average:	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
1936-40	35	45	53	90	62	60
1941-45	15	28	35	90	19	46
1946-50	34	39	57	96	24	61
1951-55	31	26	51	98	24	58
Annual:						
1956	47	45	46	99	21	62
1957	45	41	42	94	14	59
1958	44	46	43	93	12	60

[4] For more details on dairy programs in New Zealand, see New Zealand's Dairy Industry: Competitive Aspects, FAS M-26, Foreign Agricultural Service, U. S. Department of Agriculture, p. 19, November 1957.

Fairly large shipments of New Zealand beef were exported to the United States in 1952. These shipments were under a triangular arrangement at the time of a foot-and-mouth disease outbreak in Canada. Shipments from New Zealand were to replace Canadian shipments to the United States. In return, Canadian exports replaced New Zealand's exports to the United Kingdom.

By 1953, increased meat production in the United States greatly reduced import requirements. Imports from New Zealand remained small until 1957, when there was a sharp increase in U. S. cattle and beef prices and a shortage of processing beef developed. A somewhat similar rise in lamb prices attracted increased entries from New Zealand. Continued high U. S. prices in 1958 encouraged a further increase in imports of boneless beef and lamb.

U. S. meat prices are considerably higher than those in the United Kingdom or New Zealand. North Island "schedule" prices, which are the prices received by farmers on a dressed-weight basis, ranged during the last week in May 1959 from 18.0 cents per pound for lamb carcasses of 43 to 50 pounds to 22.6 cents for carcasses averaging 37 to 42 pounds. In Liverpool wholesale prices for frozen New Zealand lambs of the same weights averaged 23.3 to 25 cents per pound. By comparison, choice spring lambs weighing 35 to 45 pounds were bringing 52 cents per pound at Chicago.

Prices of boner-bull carcasses in New Zealand have been bringing more per pound than the best grades of steer beef. Prices of canner and cutter beef have also been unusually high. For the better grades of frozen carcass beef, there has been sufficient price margin to permit New Zealand shipments to the United Kingdom. However, U. S. prices of boning beef have been so high relative to U. K. prices that most of this type of beef is moving to the United States.

During the week ended May 30, 1959, the schedule in New Zealand for the highest grade ox beef was 18.3 cents per pound. The average price of fresh domestic beef of comparable grade in Liverpool was about 36 cents per pound. As of the same date, boner-bull carcasses averaged 21 cents per pound in New Zealand, 21 to 26 cents at Liverpool, and 39 cents in the United States.

TABLE 10.--Meat: Wholesale prices, by class and grade, New Zealand, Liverpool, and Chicago, about June 1, 1959

New Zealand class and grade	Price received by farmers in New Zealand[1]	Wholesale price, Liverpool, England[2]	Wholesale price, Chicago[3]	U. S. class and grade
	Cents per pound	*Cents per pound*	*Cents per pound*	
Lambs, 1st quality crossblood, downs, or Canterbury, 29 to 50 pounds.	18.0-22.6	23.3-25.0	52.0	Choice spring lambs, 35-45 pounds.
Wethers, all weights up to 72 pounds.	6.3-11.7	11.7-14.0	---	---
Ewes, all weights up to 72 pounds..	4.0- 7.0	8.1-11.7	---	---
Beef:				
Ox beef, General average quality, up to 680 pounds.	18.3	36.0	41.0-43.5	Standard and good, 500-600 pounds.
Cow beef, General average quality, all weights.	15.5	23.3-28.0	36.0	Commercial cow, 500-800 pounds.
Boner cow, ox, and heifer.....	17.6	19.8-22.1	36.5	Canner and cutter cow.
Boner bull.....	21.1	21.0-25.7	39.0	Bologna bulls, 500 pounds and over.
Butcher hogs, up to 160 pounds.....	[4] 11.7-19.1	22.0-28.0	24.0	Average value 76 pounds of pork products from 100 pounds of live hog.

[1] Schedule prices, North Island. [2] Prices for New Zealand meat. [3] Domestic production unfrozen. [4] Hawkes Bay.

New Zealand pays no duty on meat exports to the United Kingdom, but exports to the United States are assessed 3 cents per pound for beef, and 3.5 cents for lamb.

The approximate costs of moving frozen beef and lamb from New Zealand to the United States are 4 cents per pound for ocean freight, 1 cent landing charges, and 1 cent for trucking and storage. Transportation and other charges to the United Kingdom are approximately the same. On chilled beef the ocean freight is 2 to 2.5 cents higher than for frozen meat.

Effective August 1, 1959, some ocean lines put into effect higher freight rages for shipments from New Zealand to west coast cities of North America. The rate on beef in cartons rose from 3.25 cents per pound gross weight to 3.815 cents. The rate on frozen beef quarters rose from 4 cents per pound to 4.3 cents, and that on lamb carcasses from 5 to 5.3 cents per pound. Freight rates for shipments to east coast ports were not affected.

Several new ships recently placed into service from New Zealand to the United States are equipped to move chilled beef from New Zealand to west coast ports in about 20 days. Experimental shipments of high-quality chilled carcass beef to San Francisco and Los Angeles have arrived in good condition and have received favorable consumer acceptance.

Experimental quantities of chilled lamb have also been exported to the United States. These carcasses were reported to have been received in good condition and additional shipments are planned. However, the transportation of lamb in chilled condition has not been generally successful in past attempts. Although much of Argentina's beef exports are transported to the United Kingdom in the chilled state, trade in chilled lamb has not developed despite a premium market in the United Kingdom for the product. Therefore, it seems probable that transporting chilled lamb presents technical problems that will need to be resolved before New Zealand can export significant quantities of this product.

Many leading agriculturists in New Zealand believe that an expansion in the beef-cattle industry is preferable to further increases in sheep numbers and lamb exports. Lamb production in the United Kingdom, the leading export market, has increased markedly, and it is feared that the U. K. market for lamb will not expand enough to provide a profitable outlet for New Zealand's exportable surplus together with exports from Australia and other suppliers. On the other hand, prospects appear better for marketing larger beef supplies, since there are more alternative markets such as North America and Continental Europe. As yet, however, no special encouragement has been given to beef-cattle raisers to expand beef production as an alternative to sheep or dairy farming.

Exports of canned meat have been small in comparison to frozen and chilled shipments. Furthermore, there has been a steady decline in foreign marketing of canned meat in recent years. Exports during 1958 amounted to less than one-third the 32 million pounds shipped in 1954.

TABLE 11.--Meat, frozen and chilled: Exports by type, averages 1936-55, annual 1956-58

Year	Beef	Veal	Mutton	Lamb	Pork	Total
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Average:						
1936-40	108	18	125	311	61	623
1941-55	55	11	100	358	20	544
1946-50	124	17	160	408	20	729
1951-55	121	12	155	427	21	736
Annual:						
1956	248	25	144	465	19	901
1957	242	24	118	442	12	838
1958	240	24	116	488	10	878

TABLE 12.--Meat, fresh, frozen, and chilled: Exports by country of destination and type, year ending Sept. 30, 1957 and 1958

Country of destination	Lamb	Mutton	Beef and veal	Pork	Variety meats	Total
	1,000 pounds	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
1957:						
United Kingdom	437,978	113,400	124,972	8,485	35,943	720,778
United States	125	1,019	44,083	2	246	45,475
Japan	---	---	34,745	34	284	35,063
West Indies	1,232	587	12,067	948	853	15,687
Italy	---	56	13,825	---	1,543	15,425
Germany, West	280	1,409	11,355	---	166	13,209
Belgium-Luxembourg	---	1,431	7,813	1,259	336	10,839
Netherlands	22	726	6,041	103	4	6,897
Canada	4,395	1,566	3,165	34	94	9,253
Other countries	1,197	2,887	9,755	2,118	1,342	17,299
Total	445,229	123,081	267,821	12,983	40,811	889,925
1958:						
United Kingdom	479,282	91,638	30,518	5,277	32,525	639,240
United States	5,183	2,755	177,274	9	580	185,801
West Indies	1,225	542	9,034	927	1,564	13,292
Italy	---	22	1,472	---	1,120	2,614
Germany, West	34	208	878	---	87	1,207
Belgium-Luxembourg	---	224	215	701	40	1,180
Netherlands	---	934	726	---	130	1,790
Canada	12,136	2,330	9,247	74	119	23,906
Other countries	1,349	11,026	16,597	1,000	1,086	31,058
Total	499,209	109,679	245,961	7,988	37,251	900,088

Hides and Skins

Exports of hides and skins in 1958 were 36 percent above the 1936-40 average. West Germany and Italy replaced the United Kingdom as the principal market for cattle hides and calf and kip skins during 1957 and 1958. There were also substantial shipments to Japan and the Netherlands, which together with Germany have been the principal markets for U. S. hides.

The United States is the principal buyer of sheep and lamb skins from New Zealand; the United Kingdom, France, and the Benelux countries take most of the remainder.

TABLE 13.--Livestock products: Exports by type, averages 1936-55, annual 1956-58

Year	Variety meats	Wool	Sheep and lamb skins	Cattle hides and calf skins	Tallow
	Million pounds	*Million pounds*	*Million pounds*	*Million pounds*	*Million pounds*
Average:					
1936-40	22	289	37	35	65
1941-45	21	217	43	27	86
1946-50	37	397	46	26	56
1951-55	44	391	50	36	90
Annual:					
1956	46	428	53	42	95
1957	43	430	51	46	106
1958	38	456	54	44	117

TABLE 14.--Cattle hides, calf and kip skins: Exports by country of destination, 1956-58

Country of destination	1956	1957	1958	Country of destination	1956	1957	1958
	1,000 pounds	1,000 pounds	1,000 pounds		1,000 pounds	1,000 pounds	1,000 pounds
United Kingdom	9,546	6,602	5,239	France	1,194	789	236
Germany, West	9,304	13,877	15,078	Yugoslavia	164	1,263	1,354
Italy	7,930	12,089	12,565	Other countries	5,904	4,933	3,641
Japan	4,398	2,877	3,443				
Netherlands	3,710	3,801	2,856	Total	42,150	46,231	44,412

TABLE 15.--Sheep and lamb skins: Exports by country of destination, 1956-58

Country of destination	1956	1957	1958	Country of destination	1956	1957	1958
	1,000 pounds	1,000 pounds	1,000 pounds		1,000 pounds	1,000 pounds	1,000 pounds
United States	30,532	27,237	26,948	Italy	1,080	1,190	1,524
United Kingdom	9,209	11,517	12,047	Other countries	1,271	1,117	1,933
France	4,468	4,337	3,698				
Netherlands	3,767	2,923	4,590	Total	52,816	50,942	54,024
Belgium-Luxembourg	2,489	2,621	3,284				

Tallow

The volume of tallow exported during 1958 was the highest since 1942 and 80 percent above the prewar 1936-40 average. The United Kingdom continued to be the principal market for New Zealand's tallow in 1958, as it was in the 2 previous years. However, that year saw a sharp increase in the quantity shipped to other destinations, particularly the Union of South Africa and the Federation of Rhodesia and Nyasaland. There was also some increase in sales to Japan, which continued to rank second as a market for tallow as it had in the 2 previous years.

TABLE 16.--Tallow and greases: Exports by country of destination, 1956-58

Country of destination	1956	1957	1958
	1,000 pounds	1,000 pounds	1,000 pounds
United Kingdom	60,090	61,094	42,206
Japan	8,074	13,392	14,517
India	5,495	5,010	5,552
Burma	4,474	3,641	3,313
Egypt	4,445	56	626
Jamaica	2,710	4,394	3,921
Trinidad	1,427	860	1,954
Australia	1,007	1,072	9,736
Federation of Rhodesia and Nyasaland	948	405	6,377
Netherlands	805	7,916	1,843
Union of South Africa	798	1,960	13,733
Pakistan	218	1,169	448
Italy	148	453	981
Leeward and Windward Islands	58	4,278	---
Other countries	4,160	597	11,828
Total	94,857	106,297	117,035

Wool

New Zealand produces wool primarily for export, and for the period 1956-58, 97 percent of the production, including wool on skins, was marketed abroad. Wool exports during 1958 reached a record high, 58 percent above the 1936-40 average.

Wool is exported to a number of countries: the United Kingdom receives the largest quantity, France has been the second most important market in recent years, and the United States has occupied third place.

TABLE 17.--Wool: Exports by country of destination, 1956-58

Country of destination	1956	1957	1958	Country of destination	1956	1957	1958
	1,000 pounds	*1,000 pounds*	*1,000 pounds*		*1,000 pounds*	*1,000 pounds*	*1,000 pounds*
United Kingdom.....	163,315	159,536	170,962	USSR.....	7,380	9,081	3,313
France.....	77,932	87,471	84,673	Canada.....	7,350	7,208	3,065
United States.....	55,261	39,634	55,773	Japan.....	5,410	11,286	15,883
Germany, West.....	31,159	38,470	26,617	Australia.....	4,850	5,432	4,729
Belgium-Luxembourg...	23,785	22,558	25,062	Czechoslovakia.....	2,777	3,870	5,109
Italy.....	18,305	15,296	21,804	Other countries....	9,999	9,258	17,832
Netherlands.....	10,747	9,350	10,104				
Poland.....	9,612	11,783	11,401	Total.....	427,882	430,233	456,327

MARKETING FACTORS AFFECTING EXPORTS

Livestock Marketing

Farmers can market livestock through producer-owned slaughter plants, farmer cooperatives, publicly owned plants, or plants operated by overseas interests. Also, they may have livestock processed at slaughter plants and shipped on their own account.

Farmers may sell animals to meat operators and exporters. These sales may be made either at an agreed price per head or on the basis of the carcass weight and grade and a schedule price at slaughter plants. The schedule prices are determined each 2 weeks by the operators at the slaughter plants. This schedule is based on market prices in the United Kingdom, less costs of moving the meat from New Zealand plants to the United Kingdom. The schedule takes into account the value of wool, hides, variety meats, and other byproducts that are obtained from slaughter even though settlement is made on the weight and grade of the carcass only. Schedule prices must be in line with the export value of the meat or producers will market their livestock through a farmer cooperative or consign their meat directly to an export market.

A producer wishing to sell meat directly in the United Kingdom sends his livestock to a slaughtering plant. The plant charges for slaughter, chilling, storage, and packing at announced rates. The producer then arranges with a broker to sell the meat at Smithfield or some other U. K. market while the slaughtering plant arranges for shipment of the meat. Finally the producer receives an accounting for the sale and the proceeds.

The most common practice is to sell livestock to slaughterhouses on the carcass weight and grade basis. In this way, the producer receives the proceeds of sale immediately after the animals are slaughtered. It is the usual practice for the buyer to come out to the farm and select lambs for slaughter. When a farmer has plenty of feed, he may feed out lambs until nearly all grade prime and produce carcasses weighing around 35 pounds. The buyer may make selections at several different times from the flock during the season to meet this objective. It is of considerable value to the farmer to have his lambs sorted by an expert even though they are usually sold on the basis of their carcass weight and grade.

Breeding sheep, feeder lambs, and feeder wethers are usually sold by auction at local sales yards. Such sales are usually on a per head basis rather than by weight. Feeder and stocker cattle also are usually sold at local sales yards, and local butchers obtain their requirements there.

New Zealand Meat Producers' Board

The New Zealand Meat Producers' Board has exclusive control over exports. However, this trade is carried out by private business men and the Board has not used all of the power at its command. The Board also has power to supervise the slaughter of livestock and the grading of meat for export, the allocation of ocean shipping space, and the organization of trial shipments to new markets.

A special committee of the Board allocates shipping space in consultation with the Overseas Shipowners' Committee, the freezing companies, and meat exporters.

The Board determines policies concerning meat storage and the capacity of export plants, and negotiates shipping contracts and freight rates. It also determines minimum price levels for meat under the producers' price-support program.

The Board also engages in sales promotion activities. Its policy is to encourage producers' cooperative marketing organizations by guaranteeing loans for Producers' Meats, Ltd., at Auckland, and the Primary Producers' Co-op Society Ltd., at Otago and Dunedin. In cooperation with the producer organizations, the Board is constructing a new slaughter plant with freezer facilities near Invercargil. Other activities of the Board are the manufacture of commercial fertilizer and the establishment of a meat research institute.

The New Zealand Meat Producers' Board was authorized by the Meat Export Control Act of 1921. On the Board are 6 representatives of livestock producers, one of dairy producers, and two members of the New Zealand Government. The Meat Board receives financial support from a tax of 0.5 penny per pound, collected on meat produced in export slaughter plants.

The New Zealand Meat Producers' Board is currently spending about $500,000 a year on advertising and publicity in Britain.

Meat Grading

Supervision of meat grading for export is one of the functions of the New Zealand Meat Producers' Board. Graders are employed by each slaughter plant, but these are under the control of supervising graders who work for the Meat Board.

Carcasses are weighed and graded just before they enter the coolers. The grader places a tag on each carcass, denoting the grade and export class. The tag also is the official inspection certificate of the meat inspection service.

Lambs are usually classified as down-crosses (Southdown, Hampshire, etc.) or other crossbreeds (Leicester, Cheviot, etc.). Canterbury lambs are lambs originating on the South Island.

The various grades of lamb and mutton for export are as follows:

Grade	*Weight in pounds*	*Grade symbol*
Lambs:		
Prime	28 and under	D
Do	29 to 36	2
Do	37 to 42	8
Do	43 to 50	4
Do	51 to 56	T
Lambs--Continued		
Second	28 and under	YL
Do	29 to 36	YM
Do	37 to 42	YH
Reject[1]	All weights	--
Canner[2]	---do	--

Grade	Weight in pounds	Grade symbol
Wethers or maiden ewes:		
Prime	48 and under	1
Do	49 to 56	7
Do	57 to 64	3
Do	65 to 72	9
Do	73 to 80	5
Do	81 and over	0
Ewes:		
Prime	48 and under	1E
Do	49 to 56	7E
Do	57 to 64	3E
Do	65 to 72	9E
Do	73 to 80	5E
Wethers or maiden ewes--Continued		
Second	Up to 56	X1
Do	57 to 64	X2
Reject[1]	All weights	--
Canner[2]	---do	--
Boiler[3]	---do	--
Ewes--Continued		
Prime	81 and over	OE
Second	72 and over	XE
Reject[1]	All weights	--
Canner[2]	---do	--
Boiler[3]	---do	--

[1] Carcasses of which a part has been condemned. They are not exported but are sold locally.
[2] Carcasses not allowed to be exported. They are boned out for local consumption.
[3] Used for tankage production because condemned for disease or too fat for sale as meat.

A number of the very fat ewe carcasses have little value as meat. In early 1959 only the legs from ewe carcasses weighing over 72 pounds were being saved. The remainder of the carcass was tanked. The legs were trimmed of external fat and shipped to the United Kingdom.

There are 5 general classes of export beef in New Zealand: (1) Chiller beef, (2) baby beef, (3) good average quality beef, (4) fair average quality beef, and (5) boner beef. These are somewhat different from the domestic grades.

Chiller beef is the highest quality produced in the country. Since there is no grain feeding, only a few of the best animals produced would grade equivalent to U. S. Choice. Most would fall in Good Grade, but some younger animals would be Standard because of their poor condition. While most of the dairy calves are killed soon after birth and marketed as veal there are also a number of crossbred or straight dairy steers and heifers which go to slaughter. Therefore, considerable beef produced is from the dairy industry.

Comparative New Zealand and U. S. grades are as follows:

New Zealand grade and weight	*U.S. equivalent*
Chiller ox beef---------- up to 680 lb.	Steer beef, Standard to Low.
Do---------- 681 to 740 lb.	Choice and Good, but mostly Choice.
Chiller heifer beef---------- up to 640 lb.	Heifer beef, Standard to Low Choice, but mostly Good Grade.
Do---------- 641 lb. and up	Heifer beef, Standard to Low Choice, but mostly Good Grade.
Baby ox beef---------- up to 640 lb.	Steer beef, Standard and Good from young animals of beef breeds.
Baby heifer beef---------- up to 640 lb.	Heifer beef, Standard and Good from young animals of beef breeds.
G.A.Q. (general average quality) ox beef---------- up to 680 lb.	Steer beef, Standard and Utility, from lean steers of beef or dairy breeds.
Do---------- 681 to 740 lb.	Do.
Do---------- 741 to 800 lb.	Do.
G.A.Q. heifer beef---------- up to 680 lb.	Beef from heifers or young cows, Standard or Utility.
Do---------- 681 lb. and over	Beef from heifers or young cows, Standard or Utility.
G.A.Q. cow beef----------	Beef from mature cows usually carrying a good covering of fat, Commercial.

New Zealand grade and weight	*U.S. equivalent*
F.A.Q. (fair average quality) ox and heifer beef.	Beef from thin beef or dairy stock, Utility.
F.A.Q. cow beef	Beef from mature cows, Utility.
Boner, cow, ox and heifer	Canners and Cutters, may include some animals grading Utility.

There are two export grades of veal in New Zealand: Prime and Second Quality. Most of the veal is produced from dairy calves that are slaughtered within 2 or 3 days of birth.

The classes and grades for hog carcasses are as follows:

Primes or seconds	*Weight in pounds*	*Primes or seconds*	*Weight in pounds*
Porkers	60 to 100	Baconers	151 to 160
Baconers	101 to 140	Choppers	161 to 180
Do	141 to 150	Do	181 and over

Porkers are very light carcasses used mainly for consumption as fresh pork. Baconers are carcasses of which the whole side is cured for British-type bacon. Choppers are heavy pigs and old sows used mainly for the production of sausages.

Grading of meat for local consumption is done by the Department of Agriculture. Grades are designated by ribbon stamps in distinctive colors as follows:

	First grade	*Second grade*	*Third grade*	*Boner grade*
Beef	Red stripe	Blue stripe	Yellow stripe	----------
Veal	---do----------	---do----------	----------	Chocolate stripe.
Mutton	---do----------	---do----------	----------	Do.
Lamb	Broken red stripe.	Broken blue stripe.	----------	----------
Hogget (yearling)	Double red stripe.	----------	----------	----------
Pork	Red stripe	Blue stripe	----------	Chocolate stripe.

Wool Marketing

About 88 percent of New Zealand's wool is sold at auction in New Zealand, 8 percent is exported for sale at auction in the United Kingdom, and the balance is sold through other channels. Wool is New Zealand's main export. It is the leading exporter of crossbred wool and the third largest exporter of wool in the world. Only about 3 percent of the wool is consumed domestically.

New Zealand wool is well known for its uniformity and careful market preparation. A step in improving the quality of the wool is a government regulation in effect since 1945 preventing the use of marking and branding fluids that cannot be removed by scouring.

Wool is sorted at the shearing shed into age and sex classes. Fleeces are skirted, folded, rolled, and baled. Skirtings and other sorts are also baled. A typical farm would have 1 to 3 classes of lamb, yearling, ram, and ewe's wool, as well as crutchings, skirtings, and various offsorts. The on-farm grading is usually done by an employee of the farm or by the shearing crew. Sometimes a wool broker will provide a skilled grader and will complete the entire grading on the farm. However, most of the wool is regraded in central wool warehouses, usually located in the principal cities. It is displayed for sale and sold on a commission basis. After sale, 2 bales (averaging about 340 pounds each) are consolidated into larger bales for export.

Throughout all months of the year, sheep are being shorn. Shearing before lambing is becoming more common. Rams and 2-year-old ewes are often shorn before the breeding season. Lambs that do not fatten off their mothers may be weaned and shorn. Sheep are usually crutched about twice a year. Some ewes may be shorn twice each year. In some shearings, the belly wool may be left on the sheep through one shearing so that it will grow longer and be more valuable.

Direct Price Competition

New Zealand will continue to offer direct competition with U. S. livestock producers. Possibilities for exports to the United States appear best for boneless beef, the best grades of chilled beef carcasses, boneless bobby veal, and lamb carcasses and cuts. The U. S. farmer is in a good position to compete for the U. S. consumer meat dollar, but U. S. meat prices will have to drop materially before imports from New Zealand cease.

The United States has been experiencing a period of relatively short supplies of processing beef because farmers have been holding back cows from slaughter to increase herds. In the years immediately ahead, however, cow slaughter is expected to show a progressive increase; it will increase sharply when the peak of the current cattle-number cycle is reached and numbers on farms begin to recede. The corresponding increase in U. S. supplies of processing beef will limit the demand for imported boneless beef. U. S. beef imports tend to rise and decline directly with beef prices.

Increased U. S. pork and poultry supplies, and the comparatively low prices for these meats, are expected to affect the demand for beef and reduce the need for imports.

Demand for chilled beef of New Zealand's higher grades should continue relatively strong, and there is likely to be considerable expansion in this trade. However, the supply of this type of beef carcasses is rather limited. As long as returns from sheep are relatively profitable, New Zealand is not likely to strive for a big increase in production of higher quality beef.

Exports of New Zealand lamb to the United States are limited by the extent to which U. S. lamb consumption can be increased. The long-time trend in lamb consumption has been downward and only about 4 pounds per capita have been available for the average consumer in recent years. Furthermore, most of the lamb is consumed in the large northeastern cities and on the Pacific Coast. Many people eat practically no lamb. Another factor limiting sales of New Zealand lamb is the fact that for all practical purposes it must enter the country in a frozen state. Thus it is less acceptable to the consumer than fresh domestic lamb. On the other hand, the reasonable prices for lamb delivered to the United States suggests that this trade will increase substantially. Exports to the United States are likely to be largely frozen trimmed lamb cuts in boxes, rather than whole lamb carcasses wrapped in stockinettes.

New Zealand is free of sheep diseases that would prevent shipments of live lambs to the United States. Therefore lamb shipments could be as successful as the recent shipments from Australia. The ship Delfino docked in San Diego on July 27 with 23,629 Australian lambs. A breakdown in the air-conditioning machinery, caused some unusual losses but the port-to-port death loss was only 2,023, or 7.9 percent. The ship completed the voyage from Sydney in 24 days. The lambs were dry fed in quarantine before slaughter.

The shipping of live animals is usually not as economical as shipping the equivalent weight of carcasses or boxed meat, in view of the larger space displacement, death losses, and the large amounts of feed and water that must be carried. The equivalent of 23,000 head of live lambs is 800,000 pounds of dressed lamb. Some of the large meat boats carry over 15 million pounds of meat in cartons. A boat fitted to carry live animals is greatly restricted as to the cargo it can carry on the return trip to Oceania. Organizing a shipment of live animals requires considerably more capital than exporting meat, and could involve the building of additional feed and quarantine facilities in the United States.

Thus, since exports of frozen or chilled lamb can be expanded it seems probable that most U. S. lamb imports from Oceania will continue to be dressed meat rather than live animals.

Many of the ewes slaughtered in New Zealand are very fat, and boning out these animals for shipment to the United States for the manufacturing trade has not proved practical. New Zealand slaughters a fairly large number of yearling wethers which would be acceptable to many U. S. consumers.

U. S. imports of boneless bobby veal are expected to continue fairly large. This is a good inexpensive ingredient for cold cuts, sausages, and other processed meat products.

Competition for U. S. Export Markets

In recent years, the United States has been a large net exporter of cattle hides, calf skins, variety meats, and tallows and greases. New Zealand also is a large exporter of these products, and ships them largely to the same countries that are important customers for the U. S. products. As New Zealand's meat production continues to grow, the United States can expect increased competition for these export outlets.

The United States is already facing increased competition from New Zealand in the Japanese tallow market. Although U. S. prices are competitive, exports to Japan are being restricted by dollar allocations instituted by the Japanese to protect their dollar reserves. Meanwhile, New Zealand has been able to increase its share of the Japanese tallow market. A trade agreement between the two countries encourages Japan to buy tallow from New Zealand.

Most of the wool imported from New Zealand by the United States is carpet wool, which enters duty free. Since little wool of this type is produced domestically, imports have little effect on prices received by U. S. producers.

As with Australian exports, the dollars earned by New Zealand from exports to the United States eventually return to the United States in mutually advantageous trade. New Zealand needs to import many kinds of industrial products, although exports of U. S. agricultural commodities are somewhat restricted. Exports of U. S. industrial products stimulate the domestic economy and, in turn, are reflected back to the farmer through stronger demand and higher prices for his products.

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